ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

Integrated Functional Appraisal

Physical Biosciences Division

FY 2004

IFA Team Members

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Executive Summary

The Environment, Health and Safety Division (EH&S) conducted an Integrated Functional Appraisal (IFA) of the Physical Biosciences Division (PBD) during April and May of 2004. The Appraisal consisted of initial scope discussions, records review, and inspection of spaces to identify uncontrolled hazards. The inspection team was comprised of technical specialists from EH&S, the PBD Division Safety Coordinator, and others with safety responsibilities in PBD. A representative from the Department of Energy (DOE) Berkeley Site Office (BSO) was invited and was able to participate as an observer during the inspections.

The results of the Appraisal are as follows:

- As was the case for the 2001 IFA, many appraisal findings relate to deficiencies in electrical safety and seismic considerations involving research and office equipment. These are other areas for which the Division working with EH&S needs to find timely solutions.
- Lack of proper pressure relief valves on compressed gas systems was not noted as an issue compared with the findings of the 2001 IFA. This is a testament to the Division taking action to address these instances over the past three years.
- There continue to be computer workstations that were noted as deficient for ergonomic considerations. With the turnover and increase in Division personnel, along with new computer equipment being obtained on a continuing basis, the Division, in consultation with EH&S, must continue to emphasize identifying ergonomic concerns and implementing workstation upgrades.
- Training compliance for PBD is very good. The rates for the Job Hazard Questionnaire (JHQ) and required course completion are 94 and 95 percent respectively at the time of this IFA. (This compares with a 94% JHQ completion rate and 92% required-course completion rate at the time of the last IFA in 2001). Furthermore, PBD assures that Division personnel assigned to work in UC Berkeley locations (not in Calvin Laboratory) are tracked and receive the appropriate Berkeley Lab training. This is a practice that situates the Division in a very favorable position as the revised Berkeley Lab/UC Berkeley Partnership Agreement on Environment, Health, and Safety Policies and Procedures is implemented, which establishes additional provisions for training of Laboratory personnel in UC Berkeley locations.
- Waste compliance performance is outstanding as well. The Satellite Accumulation Area (SAA) rating for PBD for 2004 (through April 2004) is 100% (17 of 17 SAAs reviewed are in compliance), and the Quality Assurance (QA) rating is 96.55% (28 of 29 containers analyzed have passed).

- Division performance on chemical safety and industrial hygiene issues has improved since the last IFA in 2001. Significantly fewer instances of improper storage of incompatible chemicals and unlabelled containers were noted. In addition, the Division has made substantial progress in the use of personal protective equipment (PPE) when working with or handling hazardous materials. Continued reinforcement of the need to use proper PPE for specific operations (such as dispensing of liquid nitrogen) is ongoing through the Division Safety Committee and other channels.
- All formal work authorizations [e.g., Activity Hazard Documents (AHDs) and Radiation Work Authorizations] for active operations were reviewed. All pertinent operations in Physical Biosciences are covered by appropriate formal work authorization documents. While three AHDs relating to laser operations in Calvin are currently undergoing EH&S review, all authorizations, including those under review, reflect current conditions, users, and associated training. PBD, it should be noted, is diligent in adhering to renewal requirements, and maintains a very effective system to track authorization renewal status, user training, and personnel through its safety personnel and systems, including the Hazards Equipment Authorization and Review (HEAR) database.
- The HEAR database is validated for all operations in the Division on a yearly basis (usually early in the year), and any significant changes to hazards or operations occurring in the interim are updated in real time by safety support staffing the Division in consultation with line management.
- A couple of areas for improvement that were not identified during previous appraisals include (1) the inability to maintain proper aisle or passageways for access and egress because of the presence of equipment or other items, and (2) the obstruction of safety and service equipment (i.e., emergency eyewash and showers, electrical disconnects, and panels). As the Division continues to expand, this will be a challenge to maintain adequate clearances in work areas, and one that will need to be continuously addressed.

1.0 Introduction

Physical Biosciences has research operations centered in the UC Berkeley Campus at the DOE-controlled Melvin Calvin Laboratory (Building 3), as well as other operations at UC Berkeley (including Donner Laboratory) and five buildings on the main Berkeley Lab site (Buildings 4, 6, 31, 64, and 80). *Please note that spaces assigned to PBD but located on the UC Berkeley campus (not in Calvin or Donner Laboratories) were not included in the scope of this IFA. In addition, the PBD space in Building 4 was not reviewed, as it is only office space, and has been evaluated during previous inspection activities. Finally, activities in Building 31 have been subject to extensive review because of cryogen use, and accordingly, this operation was not within the IFA scope to minimize redundancy.*

The IFA is a key component of the Laboratory's Integrated Safety Management (ISM) system. It is part of Core Function number 5 (Continuous Improvement) of the ISM concept, and forms one of the three tiers of the Laboratory's safety assessment program that evaluates the ongoing effectiveness of divisions' ISM programs. Berkeley Lab's Environment, Health and Safety (EH&S) Division has been conducting IFAs of all Laboratory organizations since 1996, with each organization being reviewed every three years. PBD's last IFA was conducted during 2001.

2.0 Appraisal Process

2.1 Determination of Scope, Preparation for Site Visits

A meeting of the Appraisal Team (see members below) was held on April 6, 2004, to familiarize team members with the scope and proposed schedule of the upcoming inspections. In addition, the IFA Team Leader (Jack Salazar) reviewed the appraisal scope and schedule in detail with Dr. Jeffrey Pelton, the PBD Safety Coordinator, in early April 2004, to help make final preparations for the appraisal. As part of this determination of scope, the following documents were reviewed: previous Division Self-Assessment reports; the Management of Environment, Safety and Health (MESH) report from 2003; previous IFA reports; SAAR database information from 2001–present; recent Satellite Hazardous Waste Accumulation Area (SAA) Compliance Inspection reports; the Activity Hazard Document (AHD) database for operations in PBD; the Chemical Management System (CMS) database; and the most recent entries in the Hazards, Equipment, Authorizations and Review (HEAR) system. From this review emerged a list of areas (building and room locations) that would be subject to site visits during the upcoming appraisal. These locations included all areas where formal work authorizations (e.g., AHDs, radiological work authorizations, facility safety documents, and

environmental permits) were currently in effect, any areas with highly toxic or reactive chemicals (including peroxide formers), and areas acquired by the Division since the last IFA [principally Building 64 and the Larabell laboratory research space in Building 80 (Rooms 208, 210, 210A, and 214)], along with a representative sampling of office and other lab locations within the Division (including spaces such as the roof of Calvin Lab where EH&S concerns have been a longstanding issue). *Please note that spaces assigned to PBD but located on the UC Berkeley campus (not in Calvin or Donner Laboratories) were not included in the appraisal. As the newly adopted LBNL/UCB Partnership Agreement on EH&S is implemented, PBD activities on the UC Berkeley campus may be covered by future appraisals.*

Spaces chosen for inspection are listed in Appendix A. A total of 49 spaces were visited.

2.2 Compliance Records Review

Subsequent to the site visits, records of JHQ completion, required training completion, and waste compliance were reviewed (note that these items are also included in the Division's annual Self-Assessment).

2.3 Appraisal Team

The appraisal team members, and the hazard areas for which each was responsible, were:

Jack Salazar (EH&S) — Appraisal Team Leader, Industrial Hygiene/ Chemical Safety

Ted Decastro (EH&S) — Laser Safety, Nonionizing Radiation Safety

Dr. Maram Kassis (EH&S) — Waste Generator Assistance

Matt Kotowski (EH&S) — Safety Engineering/Office Safety

Dr. Peter Lichty (EH&S) — Health Services

Connie Grondona (EH&S) — Health Services

Dr. Jeffrey Pelton (PBD) — Physical Biosciences Safety Coordinator

Carol Ingram (DOE Berkeley Site Office) — Observer

All the above (or a designee representing the same discipline) were present during the walkthroughs of the chosen spaces, and contributed to the findings of this appraisal.

Other EH&S specialists who were not present during the inspections, but were called upon by the Team Leader for consultation and advice included Tom Caronna (Electrical Safety), Chris Donahue (Radiation Safety), John Seabury (Pressure Safety), and Gary Piermattei (Fire & Life Safety). Other key members of the PBD staff who assisted with the coordination of the appraisal included Marie Alberti and Vangie Peterson.

2.4 Site Visits

The inspection team conducted the inspections during April and May 2004. The inspections were organized into three main groupings: (1) Buildings 6 and 80 (Group A); (2) Building 64 (Group B); and (3) Buildings 1and 3, Donner Laboratory, and Melvin Calvin Laboratory (Group C). In addition, Jack Salazar and Matt Kotowski visited off-site office space dedicated to PBD (Suite 704 of the PowerBar Building located in downtown Berkeley). Please refer to Appendix A for a complete breakdown of the three main groups. A representative familiar with the activities occurring at each location was available, as necessary, at the time of the inspection. The team leader of the appraisal maintained a master list of the findings as the site visits progressed.

3.0 Inspection Results

Findings and actions resulting from the site visits are presented in Appendix B. Items representing significant EH&S concern for immediate management attention are highlighted in red. (Items in red relating to Industrial Hygiene programmatic areas will be assigned to the EH&S Industrial Hygiene group for follow-up and resolution.) Items noted during the 2001 IFA inspections still requiring corrective action are highlighted in blue (see Appendix B) for particular management attention. In general, given the ever-changing nature of the research in PBD, spaces were well maintained, indicating the effectiveness of the Division's Self-Assessment inspections, as well as the Division's safety-management program as a whole.

Findings where consistent issues were noted across the spaces include:

Workstation Ergonomics: Some computer workstations associated with research laboratories and in PBD offices are not well designed ergonomically. Given that some Division employees have sustained injuries stemming from the improper use of computers and/or inadequate workstation design, this issue continues to demand increased attention. In addition, a related area is the emergence of laboratory ergonomic issues; specifically, this appraisal identified some instances of laboratory microscope use where researchers could benefit from improved workstation design and ergonomic practices (e.g., more knee space directly under microscope setups, and more supportive seating for users working with microscopes on an extended basis).

Electrical Safety: There were instances identified where high-electrical-load lab equipment (e.g., chromatographs, spectrometry workstations) was connected to relocatable power taps (RPTs or power strips) in lieu of being connected to permanent electrical outlets. This situation calls for an increase in the dedicated electrical service capacity and/or reconfiguration of the current electrical connections.

Obstructed Safety and Service Equipment: This appraisal found instances of blocked electrical service panels, disconnects, and emergency eyewash and shower installations. It is critical that proper clearance be maintained to allow for proper access to these items for operational and safety purposes. For emergency eyewashes and showers, it is important that no obstructions, protrusions, or sharp objects be located within 30 inches from the center of the spray pattern of the emergency shower (i.e., 60-inch clearance zone). Clearance for electrical panels must be a minimum of 30 inches wide, 36 inches deep, and the higher of 78 inches from the floor or to the top of the panel.

Seismic Bracing: Numerous pieces of lab and office equipment (e.g., freezers, file cabinets, and bookcases) were noted as not being secured for seismic purposes; in addition, large portable cryogen dewars of a few installations were not secured against seismic movement. The Division should continue its efforts with Facilities to ensure large equipment is properly secured.

Maintaining Proper Means of Access/Egress: It has come to light during this appraisal that an increasing number of aisles and passageways are restricted beyond the required width for adequate access/egress. This can be traced to the continued growth of the Division, and its need to place more people and equipment in a limited space. Nonetheless, it is important to ensure that passageways are at least 28 inches across at their narrowest point, and that aisle ways that lead directly to building hallways are at least 36 inches in width at all points.

High-Volume Cryogenics Use: Division operations necessitate the use of relatively large amounts of cryogens (principally liquid nitrogen) for such experimental purposes as protein crystallography. In addition to the PPE precautions taken to guard against direct skin and eye contact with the cryogens, an associated hazard—the potential for oxygen-deficient environments upon accidental release of cryogens—has become more of a concern. Some of the areas with large inventories of cryogens (on the order of 100 liters or more) do not have sufficient volume or robust enough ventilation systems to prevent the significant reduction of room-air oxygen content upon accidental release. EH&S will work with experimenters in these areas to develop solutions to reduce the cryogen inventory to safer levels, or to install monitoring or ventilation upgrades to accommodate research activities.

4.0 Noteworthy Practices

The Physical Biosciences Safety Team, composed of the PBD Safety Coordinator, Jeff Pelton, and Vangie Peterson and Marie Alberti, is especially proactive in identifying and correcting EH&S concerns. This is certainly evident in the reduction of the number of chemical safety, gas-system pressure relief, and PPE deficiencies found in this appraisal in contrast to what was noted in the

2001 IFA. In addition to improving in some areas, the Division has maintained a high level of achievement in areas such as waste and training compliance.

The Safety Team is especially effective working with PBD Safety Committee representatives and Division management to effect change and enhance awareness and understanding of important EH&S issues.

5.0 Conclusions

Overall, safety within PBD has excellent management support and a very competent core group (i.e., Safety Team) responsible for carrying out the program. As PBD expands, the Division will need to rely on this program to assure EH&S issues are not overlooked. More staff and more equipment require an increased emphasis on good housekeeping practices. In addition, continuous improvement opportunities still exist in the areas of seismic safety involving research and office equipment, electrical safety, cryogenic safety, and ergonomics.

Appendix A
Sites included in FY 2004 IFA Inspections

Building Number	Room Number	Survey Group
006	2105	A
006	2105A	A
006	2129	A
006	2129A	A
006	2129B	A
006	2137	A
006	2137A	A
080	0201	A
080	0203	A
080	0203A	A
080	0203B	A
080	0203C	A
080	0208	A
080	0210	A
080	0210A	A
080	0214	A
064	0101	B
064	0123	B
064	0125	B
064	0127	B
064	0128	B
064	0142	B
064	0243	B
064	0245	B
003	0118	C
003	0120	C
003	0134	C
003	0136	C
003	0143	C
003	0206	C
003	0210	C
003	0215	C
003	0250	C
003	0314	C
003	0314A	C
003	0314C	C
003	0314D	C

Building Number	Room Number	Survey Group
003	0316	C
003	0318	C
003	0322	C
003	0350	C
003	ROOF	C
001	0469	C
001	0469A	C
001	0469B	C
001	0469C	C
001	0472	C
001	0474	C
PowerBar	0704	N/A

Appendix B
Findings: Physical Biosciences Division
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Building	Room	Finding	Action
006	2105	Possible ergonomic issues associated with microscope use.	EH&S to review extent of microscope use for follow-up.
		Holes cut above door opening to 6-2101 could compromise fire rating.	Contact Fire Marshal to review.
		Heavy boxes stored on top of refrigerators.	PBD to relocate heavy boxes stored overhead.
		Acetic acid stored in acid / corrosives cabinet.	PBD to store acetic acid with flammables.
	2129A	Lead solder present.	EH&S to follow-up to determine need for lead solder, and possible lead-free alternatives.
	2129B	Class 4 laser not interlocked and electrical connections located near source of water.	PBD to contact Ted Decastro, Laser Safety Officer (LSO), for review of operation prior to using laser. In addition, water must be disconnected before laser use.
	2129B	Gas cylinder not properly secured, and electrical disconnect blocked.	PBD to contact Facilities to secure cylinder and clear space in front of disconnect.
		Carbon tetrachloride not labeled as a carcinogen.	PBD to label container as carcinogen.
	2137	Husky tool box blocking aisle way from 2129 to 2137.	PBD to relocate tool box away from exit pathway.
	2137	Gas line transverses experimental setup involving glass vacuum lines.	PBD to reroute gas line away from glass experimental setup.
	2137	Unlabelled chemical containers present.	PBD to label containers as per contents and hazard.
		Ether container not labeled for date of receipt or peroxide concentration.	PBD to indicate date of receipt and test results on peroxide label and affix to container.
	2137A	Potential oxygen deficiency due to presence of LN dewar.	EH&S to review operation and perform calculation (O2 %) to determine severity of hazard.
	2145	File cabinet (near 2145 side of room) not secured, and exit signs not in place at 2 doors to hallway (near 2145).	PBD to contact Facilities to secure cabinet and to install exit signs over doors.

Appendix B (continued)
Findings: Physical Biosciences Division
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Building	Room	Finding	Action
080	201	Inadequate guarding of sequencer.	PBD to contact EH&S to review guarding requirements.
		Light fixtures not approved for industrial use.	PBD to remove two-prong-plugged metal light fixtures and replace with approved alternative.
	201	Auxiliary lighting installation overhead not approved.	PBD to contact Tom Caronna, Electrical Safety Specialist, to review.
	203	No use logs indicating operating time and speeds found relating to ultra centrifuge units.	PBD to develop a system to maintain use logs for factory service representative de-rating of rotors.
	208	Incorrect signage permanently posted on door from hallway, stating, "Alignment in Progress."	PBD to contact Ted Decastro, LSO, for guidance on appropriate signage and safety procedures for confocal microscope use.
	210A	Failure to maintain required clearance in aisle way.	PBD to provide proper clearance (recommended at 36"). EH&S Industrial Hygiene to help resolve.
	210	Access to emergency eyewash and safety shower restricted.	PBD to maintain clear access to this unit. EH&S Industrial Hygiene to help resolve.
	210	Improper separation of acids/ bases in storage.	PBD to separate acids and bases from commingling during accidental release, and to provide and use plastic tubs under containers to contain any free-flowing liquids.
	210	Non-industrial light fixtures in use in laboratory setting.	PBD to remove two-prong-plugged metal light fixtures and replace with approved alternative.
	214	Freezer needs to seismically secure.	PBD to contact Facilities to secure freezer.
	214	Incubators on benches need tie downs for seismic safety.	PBD to contact Facilities to secure.
	214	Clean bench needs to be seismically secured.	PBD to contact Facilities to secure.
	214	Emergency eye wash and shower blocked by Biological Safety Cabinet.	PBD to reconfigure to ensure proper access to eyewash/shower unit is maintained. EH&S Industrial Hygiene to help resolve.
	214	Biological Safety Cabinet in middle of room is not wired permanently.	PBD to contact Facilities to install a hard wire connection to this unit.
	214	Medical Waste Container overfilled.	PBD to make arrangements to empty box, and to ensure contents are removed from the lab when collection container is two-thirds full.
	214	"No food" label was not present on refrigerator storing flammables.	PBD to affix "No Food" label to refrigerator unit. EH&S Industrial Hygiene to help resolve.

Appendix B (continued)
Findings: Physical Biosciences Division
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Building	Room	Finding	Action
064	101	The incubator and medical freezer in corner of room are not seismically secured.	PBD to contact Facilities to install proper restraints.
	101	Floor standing CO2 incubator not anchored.	PBD to contact Facilities to install proper restraints.
	101	Biological safety cabinet needs to be secured.	PBD to contact Facilities to install proper restraints.
	101	Microscope setup present on bench without proper knee space for user.	EH&S to review extent of microscope use for follow-up.
	101	Unlabelled vials present on bench.	PBD to label as per contents and hazard.
	128	Various computers present on desktops without adjustable setups.	EH&S to conduct ergonomic evaluations of this workstations.
	128	“No Food” label not present on microwave used for heating lab solutions / preparations.	EH&S to provide “No Food” label for affixing to microwave unit.
	128	Electrical Panels (#33A, 266a33A) & (#266A3B, 266 A3A) blocked.	PBD to remove materials to maintain at least three-foot clearance in front of panels.
	127	Electrical box in cold room missing cover.	PBD to contact Facilities to have cover replaced.
	142	LN dewar not secured.	PBD to ensure that dewar is strapped and secured to solid surface when unit is present in lab.
	142	Non-industrial light fixture in use in laboratory setting.	PBD to remove two-prong-plugged metal light fixture and replace with approved alternative.
	142	File and storage cabinets in room are not seismically secure.	PBD to contact Facilities to secure.
	142	Flexible electrical drops wrapped around steel building members.	PBD to remove drops from around members, and contact Facilities, as necessary, to modify electrical connections.

Appendix B (continued)
Findings: Physical Biosciences Division
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Building	Room	Finding	Action
3	118	Flammable cabinet does not have spring-loaded self-closing doors.	PBD to contact Facilities to modify or obtain another flammable storage cabinet that is properly equipped.
	118	Biological safety cabinet is over one year since last certification (due 4/4/04).	PBD to contact TSS consultant firm to come in and recertify.
		Electrical Panel blocked.	PBD to remove materials to maintain at least three-foot clearance in front of panel.
	120	Disconnect switches obstructed.	PBD to ensure clear access to electrical disconnect switches.
	120	Gas cylinders stored with regulators attached in wooden box.	PBD to work with EH&S to reduce gas inventory in this box, and to remove regulators when not in use.
	120	High amperage equipment (e.g., heat gun) connected to relocatable power tap (RPT or power strip).	PBD to connect high amperage equipment to permanent electrical outlets or make necessary arrangements for Facilities to install additional electrical capacity in room.
	120 (Outside)	Emergency Eyewash and Shower is obstructed. (#140-3).	PBD to maintain clear access to this unit. EH&S Industrial Hygiene to help resolve.
	134	Two variable transformers (Variacs) in fume hood have only two wires with no ground. One of these units has an open face plug that exposes conductors.	PBD to obtain Variacs with three conductors, and replace open-face plug with approved connector.
	143	Heavy tool box on top of desk presents a falling hazard.	PBD to relocate tool box from this elevated location.
	143	Failure to maintain adequate aisle width (LN dewar near door).	PBD to rearrange space to ensure at 28-inch-aisle width at all points.
	143	Three electrical panels in room obstructed.	PBD to ensure clear access to these panels.
	143	RPT “daisy-chained” to extension cord, then to wall inside x-ray unit.	PBD to disconnect and make arrangements with Facilities to install permanent wiring to handle electrical needs in this area.
	143	Excessive amount of LN in room.	EH&S to evaluate operation and potential for O2 deficiency if LN is released.
	250	Oven in fume hood (#3) presents obstruction to proper air flow.	PBD to move unit to another location from fume hood.
	250	Satellite Accumulation Area (SAA) stored next to oven in hood #3.	PBD to consider relocating to a more suitable location away from heat source.

Appendix B (continued)
Findings: Physical Biosciences Division
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Building	Room	Finding	Action
3	250	Flammable storage cabinets (#2, #9) have strong chemical odor due to leaking containers within the units; no secondary containment is present.	PBD to clean cabinets to remove residues causing odors, and insert plastic storage trays under containers to contain any free flowing liquids.
	250	File cabinet and shelving unit near fume hood #2 not seismically secure.	PBD to contact Facilities to secure.
	250	Restricted aisle width in 250 I/H (both sides of center aisle).	PBD to ensure at least 28" on either side of center aisle is maintained.
	250	Buffer solutions stored in glass bottles on floor near fume hood #5.	PBD to relocate glass bottles to cabinets or bench tops where possibility of breakage is reduced.
	206	Obstructed electrical disconnect near door.	PBD to ensure clear access to electrical disconnect switches.
	350	Chromatography unit (Biocal Sprint) rated at 5.0 amps plugged into RPT near fume hood #6.	PBD to connect unit directly to permanently wired outlet or to contact Facilities to install additional electrical service for this unit.
	350	Computer workstation in 350R not set up in an ergonomic fashion (monitor not aligned with keyboard).	EH&S to assist user by performing an ergonomic evaluation of this workstation.
	350	Electrical Panel PNL-031-03 obstructed by waste basket.	PBD to relocate waste basket to ensure proper access to panel is maintained.
	350	Biospectrometry workstation (rated at 10 amps) is plugged into RPT (near bench U). Biocard 700E (rated at 5 amps) is plugged into RPT at Bench IV.	PBD to connect unit directly to permanently wired outlet or contact Facilities to install additional electrical service for these units.
	350	Bicycle obstructing access to aisle 350G.	PBD to remove bicycle to maintain proper access.
	350	File cabinets and other cabinets across from 350E not seismically secure.	PBD to contact Facilities to secure.
	350	-80 freezer not seismically secure across from 350 D.	PBD to contact Facilities to secure.
	350	Duct covering not in place where fume hood #2 used to be.	Contact Facilities to install proper blank to cover exposed end of ducting.
	350	Exposed electrical connection in hood # 2 (junction box).	Contact Facilities to replace cover.
	322	Power cables and cables conveying water in same tray.	PBD to contact Facilities to separate power and water cable runs.
	322	Cable tray not properly grounded.	PBD to contact Facilities to install proper grounding for cable tray.

Appendix B (continued)
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Building	Room	Finding	Action
3	322	Extension cords connected and daisy chained in cable tray.	PBD to disconnect and make arrangements with Facilities to install permanent wiring to handle electrical needs in this area.
	322	Obstructed electrical panel.	PBD to ensure clear access to panel is maintained.
	322	Electrical disconnects are not properly labeled.	PBD to work with Facilities to label disconnects as to the equipment they shut off.
	314D	Electric boiler obstructs disconnect.	PBD to contact Facilities to aid in reconfiguring this space to ensure disconnect is sufficiently clear to access.
	314	-80 freezer cord under tension when connected to wall outlet.	PBD to contact Facilities to install an outlet in closer proximity to freezer unit.
	314	Chromatography unit (Biocal Sprint) rated at 5.0 amps plugged into RPT.	PBD to connect unit directly to permanently wired outlet or contact Facilities to install additional electrical service for this unit.
	314	Obstructed electrical panel (PNL-037-03).	PBD to ensure clear access provided to electrical panel.
	314	Lead-based paint suspected to be present in deteriorating condition on autoclave cart.	PBD to remove cart from service or work with EH&S to address potential lead hazard. EH&S Industrial Hygiene to help resolve.
	Roof	Large LN dewar secured only at bottom one-third position in cylinder storage area.	PBD to provide for additional securing point on dewar.
	Roof	Various cylinders in storage area present without caps.	PBD to ensure caps are placed on cylinders when not in use.
	Roof	Four small air gas cylinders in cylinder storage area not adequately secured.	PBD to contact Facilities to install the necessary cylinder restraints or relocate these cylinders to an area where they can be secured.
	Roof	Numerous obstructed electrical panels and disconnects present.	PBD to ensure proper access is maintained to disconnects and panels.
	Roof	Combustible material (cardboard) present in attic area.	PBD to clear cardboard from attic space.
	Roof	Inadequate guarding of fan shaft on HF 30	PBD to contact Facilities to install proper guarding.
	Roof	Cover missing from electrical box on EF 37.	PBD to contact Facilities to replace missing cover on electrical box.

Appendix B (continued)
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Building	Room	Finding	Action
PowerBar	0704	Bookcase near fire-alarm light at eastern wall is not secured to the wall.	PBD to contact Facilities to seismically secure bookcase.
	0704	Upper cabinets resting on top of desk in westernmost office and in cubicles near entrance to suite are not secured to preclude the possibility of falling.	PBD to contact Facilities to secure upper cabinets to desk units or to each other if they are in a back-to-back arrangement.
	0704	File cabinet in cubicle adjacent to suite entrance not secured to the wall.	PBD to contact Facilities to seismically secure cabinet.
	0704	Supply cabinet near conference table not secured to the wall.	PBD to contact Facilities to seismically secure the supply cabinet.